

# HiPerFET™

## Power MOSFETs

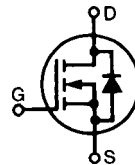
IXFH/IXFT/IXFX14N100

IXFH/IXFT/IXFX15N100

N-Channel Enhancement Mode

High dv/dt, Low  $t_{rr}$ , HDMOS™ Family

Preliminary data sheet



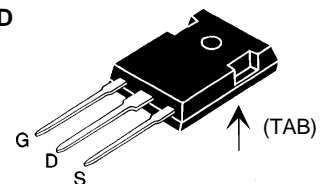
Symbol	Test Conditions	Maximum Ratings	
$V_{DSS}$	$T_J = 25^\circ\text{C}$ to $150^\circ\text{C}$	1000	V
$V_{DGR}$	$T_J = 25^\circ\text{C}$ to $150^\circ\text{C}$ ; $R_{GS} = 1\text{ M}\Omega$	1000	V
$V_{GS}$	Continuous	$\pm 20$	V
$V_{GSM}$	Transient	$\pm 30$	V
$I_{D25}$	$T_C = 25^\circ\text{C}$	14N100 14	A
		15N100 15	A
$I_{DM}$	$T_C = 25^\circ\text{C}$ , pulse width limited by $T_{JM}$	14N100 56	A
		15N100 60	A
$I_{AR}$	$T_C = 25^\circ\text{C}$	14N100 14	A
		15N100 15	A
$E_{AR}$	$T_C = 25^\circ\text{C}$	45	mJ
$dv/dt$	$I_S \leq I_{DM}$ , $di/dt \leq 100\text{ A}/\mu\text{s}$ , $V_{DD} \leq V_{DSS}$ , $T_J \leq 150^\circ\text{C}$ , $R_G = 2\ \Omega$	5	V/ns
$P_D$	$T_C = 25^\circ\text{C}$	360	W
$T_J$		-55 ... +150	$^\circ\text{C}$
$T_{JM}$		150	$^\circ\text{C}$
$T_{stg}$		-55 ... +150	$^\circ\text{C}$
$T_L$	1.6 mm (0.062 in.) from case for 10 s	300	$^\circ\text{C}$
$M_d$	Mounting torque	1.13/10	Nm/lb.in.
Weight		6	g

Symbol	Test Conditions	Characteristic Values ( $T_J = 25^\circ\text{C}$ , unless otherwise specified)		
		min.	typ.	max.
$V_{DSS}$	$V_{GS} = 0\text{ V}$ , $I_D = 1\text{ mA}$	1000		V
$V_{GS(th)}$	$V_{DS} = V_{GS}$ , $I_D = 4\text{ mA}$	2.5		V
$I_{GSS}$	$V_{GS} = \pm 20\text{ V}_{DC}$ , $V_{DS} = 0$			$\pm 100\text{ nA}$
$I_{DSS}$	$V_{DS} = 0.8 \cdot V_{DSS}$ , $T_J = 25^\circ\text{C}$ $V_{GS} = 0\text{ V}$ , $T_J = 125^\circ\text{C}$			250 $\mu\text{A}$ 1 mA
$R_{DS(on)}$	$V_{GS} = 10\text{ V}$ , $I_D = 0.5 \cdot I_{D25}$ Pulse test, $t \leq 300\ \mu\text{s}$ , duty cycle $d \leq 2\%$	14N100 0.75 15N100 0.70		$\Omega$ $\Omega$

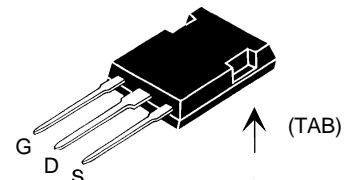
$V_{DSS}$	$I_{D25}$	$R_{DS(on)}$
1000 V	14 A	0.75 $\Omega$
1000 V	15 A	0.70 $\Omega$

$t_{rr} \leq 200\text{ ns}$

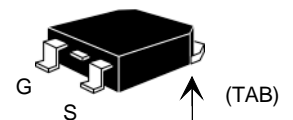
TO-247 AD  
(IXFH)



PLUS 247™  
(IXFX)



TO-268 (D3)  
(IXFT)



### Features

- International standard packages
- Low  $R_{DS(on)}$  HDMOS™ process
- Rugged polysilicon gate cell structure
- Unclamped Inductive Switching (UIS) rated
- Low package inductance
  - easy to drive and to protect
- Fast intrinsic Rectifier

### Applications

- DC-DC converters
- Battery chargers
- Switched-mode and resonant-mode power supplies
- DC choppers
- AC motor control
- Temperature and lighting controls

### Advantages

- Easy to mount with 1 screw (TO-247) (isolated mounting screw hole) or mounting clip or spring (PLUS 247™)
- High power surface mountable package
- High power density



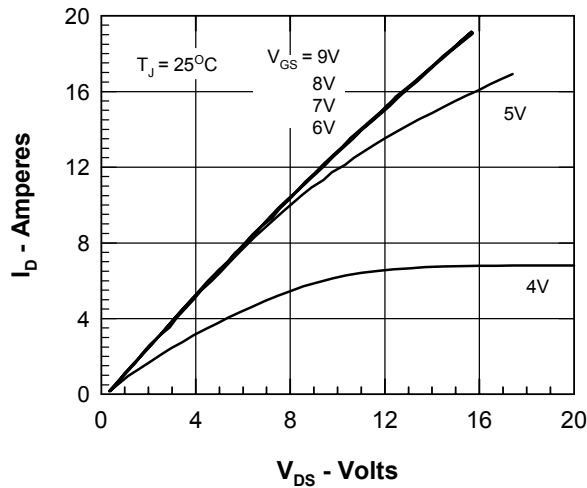


Fig.1 Output Characteristics

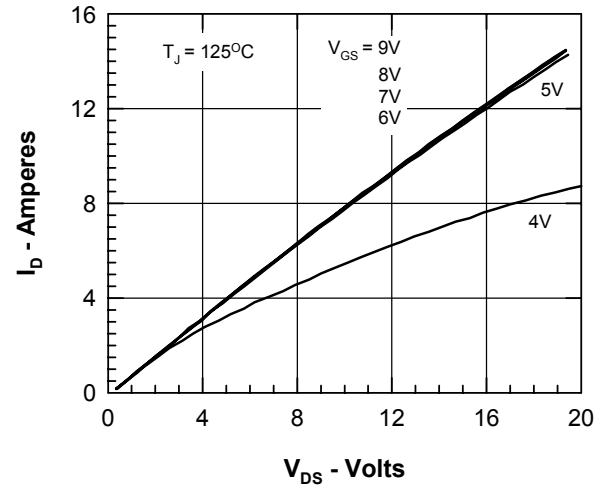


Fig.2 Output characteristics at elevated temperature

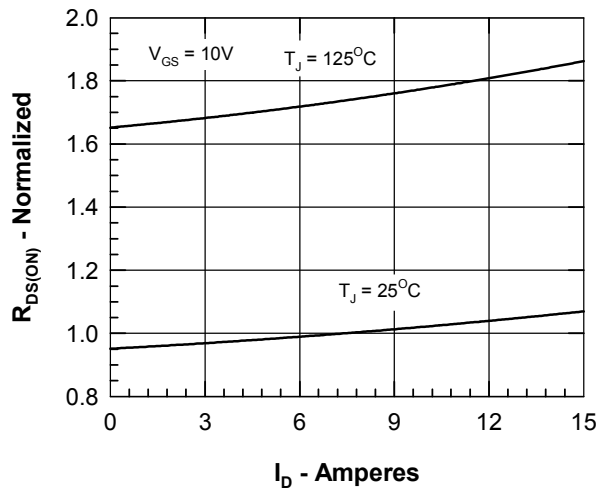
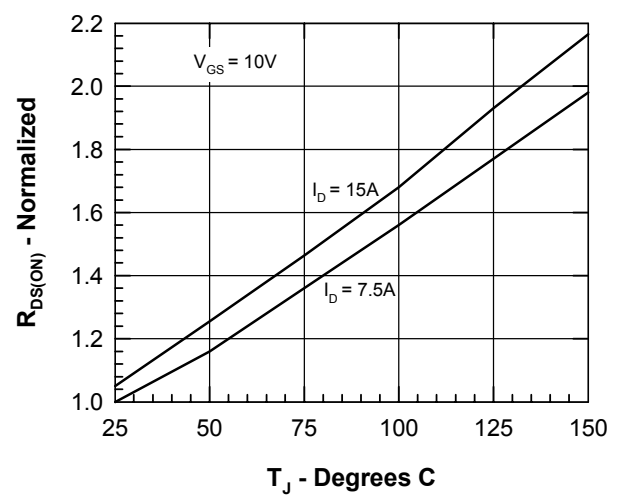

Fig.3  $R_{DS(on)}$  vs. Drain Current


Fig.4 Temperature Dependence of Drain to Source Resistance

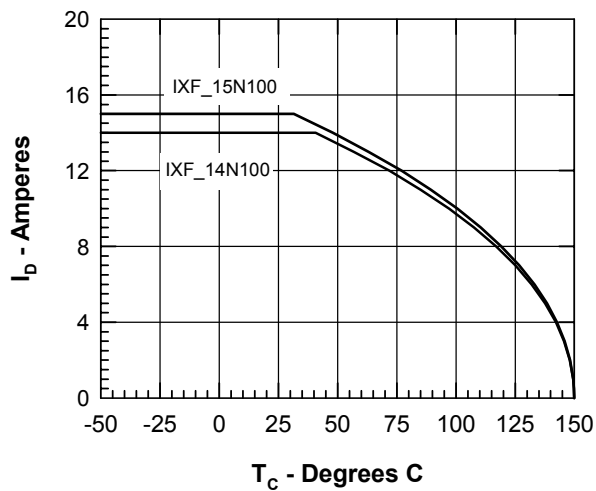


Fig.5 Drain Current vs. Case Temperature

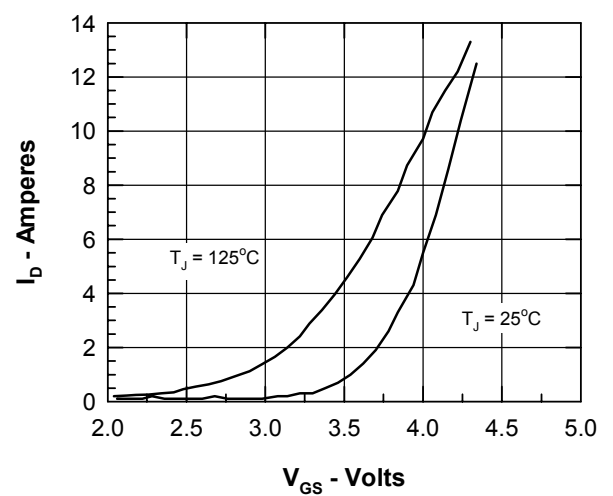


Fig.6 Input admittance

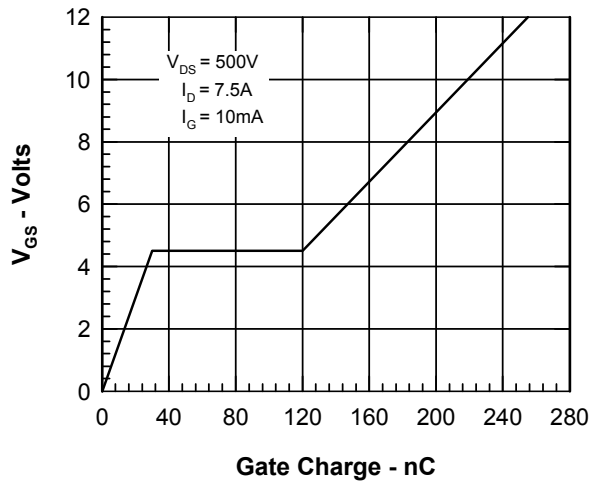


Fig.7 Gate Charge Characteristic Curve

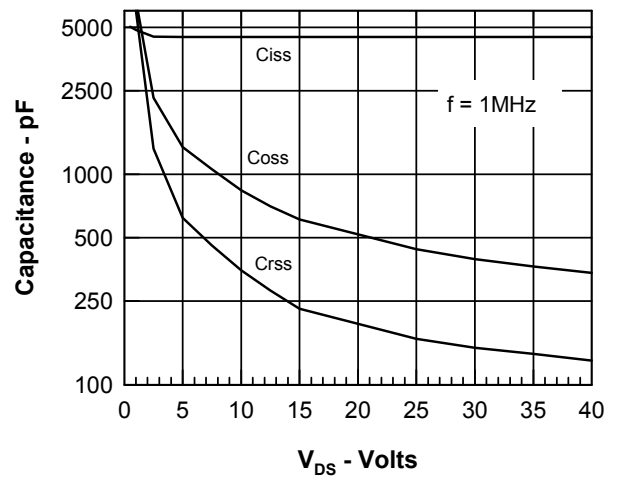


Fig.8 Capacitance Curves

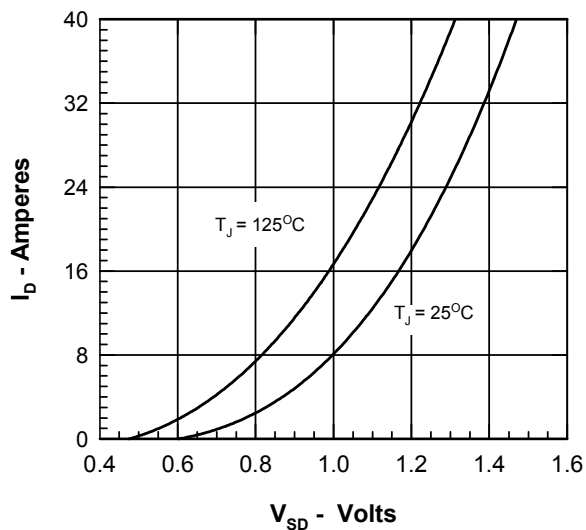


Fig.9 Source current vs Source drain voltage.

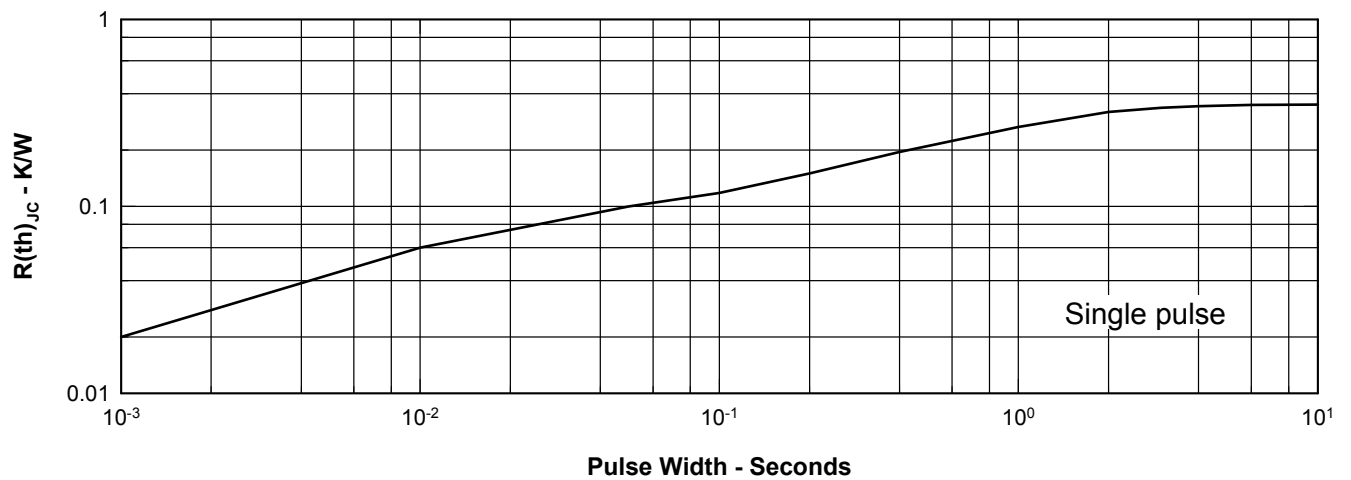


Fig.10 Transient Thermal Impedance